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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,918	10/22/2001	Claus-F Claussen	TER-00264-2	1307

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EXAMINER

DOUGHERTY, ANTHONY T

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 01/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/034,918

Applicant(s)

CLAUSSEN, CLAUS-F

Examiner

Anthony T. Dougherty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-11 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claim 4 objected to because of the following informalities: Claim 4 is exactly the same in wording as claim 3, it is assumed by the examiner that this is a typographical error and claim 4 was not intended to be included as a repeat of claim 3. Appropriate correction is required.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1, and 3-6 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 6,473,717 to Claussen et al. Although the conflicting claims are not identical, they are not patentably distinct from each other because U.S. Patent No. 6,473,717 to Claussen et al. teaches the same method as the application wherein the application only narrows the claim scope over U.S. Patent No. 6,473,717 to Claussen et al. by claiming a particular use of the method in determining movement of only a neck pattern as opposed to the claims of U.S. Patent No. 6,473,717 to Claussen et al. which do not limit the application to a specific body part but instead claims the method in relation to a

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body of the subject suggesting all body part movements would be measured and the particular use of this method in determining a neck pattern would have been an obvious modification to one of ordinary skill in the art.

With regard to claims 1, and 3-6:

Application 10/034918	U.S. Patent No. 6,473,717
1. A method for determining the neck movement pattern subject, which comprises:	1. A method for evaluating a head and trunk movement pattern of a subject, which comprises:
placing markers on the <u>shoulders</u> and on the <u>head</u> of the subject;	configuring a plurality of markers to move together with the body of a subject;
recording a <u>head/body</u> movement of the subject with the aid of the markers moving with the body of the subject;	for each of the plurality of markers, detecting a locus curve in three-dimensional space as a function of time and storing the locus curve as a data field of a measured data record that is common to the plurality of markers;
acquiring a locus of each marker in three-dimensional space as a function of time and storing the loci as a data record;	
	characterizing a movement pattern of the body of the subject using characteristic variables derived from the measured data record;
	deriving reference variables from a stored

	<p>plurality of reference data records;</p> <p>comparing each of the characteristic variables with the reference variables derived from the stored reference data records;</p> <p>deriving each of the characteristic variables from a projection of the locus curve of at least one of the plurality of markers onto one of the three datum planes of a Cartesian coordinate system;</p> <p>and ascertaining at least one characteristic variable representing a length of one of the locus curves.</p> <p>2. The method according to claim 1, which comprises:</p> <p>using the locus curve of at least one of the plurality of markers to ascertain a plurality of sequences corresponding to a sway cycle of</p>
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	<p>body sway;</p> <p>and deriving at least one of the characteristic variables from a particular one of the sequences.</p> <p>3. The method according to claim 2, which comprises</p>
<p>using the data record to form a mean value of the loci <u>representing a shoulder movement and a difference between the mean value and the loci representing a head movement</u>;</p>	<p>deriving a mean and a standard deviation of the at least one characteristic variable from a plurality of the sequences.</p>
<p>and generating a profile of the <u>neck</u> movement pattern derived therefrom in at least one space coordinate.</p>	<p><u>From claim 1 above:</u> (characterizing a movement pattern of the body of the subject using characteristic variables derived from the measured data record;)</p>
<p>3 (and 4 which is identical to 3). The method according to claim 1, which comprises determining from the data record a projection of each locus onto the datum plane of a Cartesian coordinate system.</p>	<p><u>From claim 1 above:</u> (deriving each of the characteristic variables from a projection of the locus curve of at least one of the plurality of markers onto one of the three datum planes of a Cartesian coordinate system;)</p>
<p>5. The method according to claim 1, which</p>	<p><u>From claim 1 above:</u> (for each of the plurality</p>

comprises determining a resulting head movement from the mean value of the loci representing the movements of a marker moving with the forehead of the subject and a marker moving with the of back the head the subject.	of markers, detecting a locus curve in three-dimensional space as a function of time and storing the locus curve as a data field of a measured data record that is common to the plurality of markers; characterizing a movement pattern of the body of the subject using characteristic variables derived from the measured data record;)
6. The method according to claim 1, which comprises determining a degree of agreement between a number of appropriately determined difference patterns stored as reference and a current difference pattern of the neck movement.	<u>From claim 1 above:</u> (deriving reference variables from a stored plurality of reference data records; comparing each of the characteristic variables with the reference variables derived from the stored reference data records;)

As can be seen U.S. Patent No. 6,473,717 to Claussen et al. claims all of the same subject matter as the current application 10/034918 except for placing the markers on the head and shoulders, representing a head and shoulder movement and generating a profile of neck movement.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have specified the claimed body movements marked be the head and shoulders to represent their movement and using these movements to determine the movement of the neck.

Accordingly, such a modification would have been obvious since the head and shoulders are parts of the body as claimed by U.S. Patent No. 6,473,717 to Claussen et al. and knowing their movement would necessarily provide the movement of the neck since the head and shoulders of a subject cannot be separated any movement of these two must reveal the movement of the neck connecting them, thereby suggesting the obviousness of the modification.

4. Claims 7-11 rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 13, 14, 15, and 17 of U.S. Patent No. 6,473,717 to Claussen et al. Although the conflicting claims are not identical, they are not patentably distinct from each other because U.S. Patent No. 6,473,717 to Claussen et al. teaches an apparatus not patentably dissimilar as the application wherein the application only narrows the claim scope over U.S. Patent No. 6,473,717 to Claussen et al. by claiming a particular use of the apparatus in determining movement of only a neck pattern as opposed to the claims of U.S. Patent No. 6,473,717 to Claussen et al. which do not limit the application to a specific body part but instead claims the apparatus in relation to a body of the subject suggesting all body part movements would be measured and the particular use of this apparatus in determining a neck pattern would have been an obvious modification to one of ordinary skill in the art.

With regard to claims 7-11:

Application 10/034918	U.S. Patent No. 6,473,717
7. An apparatus for evaluating a movement pattern of a subject having shoulders and a head, comprising:	13. An apparatus for performing the method according to claim 1, comprising:
a plurality of markers respectively disposed on the shoulders and on the head of the subject;	the plurality of markers for attachment to a head and a trunk of the body of the subject during the configuration step;
a data processing system connected to a receiver configuration for recording a locus of each of said markers, said data processing system comprising a processing stage for calculating a data record, representing the locus, from signals of the receiver configuration;	two receivers configured at right angles with respect to each other for detecting the locus curve for each of the plurality of markers, the receivers for providing signals; and a data processing system including: a processing stage for calculating the measured data record representing the locus curve from the signals of the two receivers; the database for storing the reference data record;
said data processing system further comprising	an analysis module for deriving the

<p>an analysis module with a subtraction stage configured to use the data record to form a difference between a mean value of the loci representing movements of the shoulder and a locus representing the head movement, and generating a profile of a neck movement pattern derived therefrom in at least one of three space coordinates.</p>	<p>characteristic variables from the measured data record and for deriving the reference variables from the plurality of reference data records;</p> <p>and a comparison module comparing each of the characteristic variables with the reference variables to ascertain a degree of correspondence between the measured data record and at least one of the plurality of reference data records.</p>
<p>8. The apparatus according to claim 7, wherein said receiver configuration comprises two receivers disposed orthogonally relative to one another.</p>	<p><u>From claim 1 above:</u> (two receivers configured at right angles with respect to each other for detecting the locus curve for each of the plurality of markers, the receivers for providing signals;)</p>
<p>9. The apparatus according to claim 7, wherein said processing stage is configured to assign the locus of each marker as a data field to the data record.</p>	<p>14. The apparatus according to claim 13, wherein the processing stage is configured to associate the locus curve for each of the plurality of markers with the data field of the measured data record.</p>
<p>10. The apparatus according to claim which</p>	<p>15. The apparatus according to claim 13,</p>

further comprises a temporary data record memory arranged downstream of the processing stage in a signal processing direction.	wherein the processing stage includes a temporary data record storage device.
11. The apparatus according to claim 7, which further comprises an output module connected to receive from said data processing system the profile of the neck movement pattern determined by the subtraction for displaying the movement pattern.	17. The apparatus according to claim 13, wherein the data processing system is configured to supply the characteristic variables to an output module for displaying a movement pattern selected from the group consisting of a measured movement pattern and a reference movement pattern.

As can be seen U.S. Patent No. 6,473,717 to Claussen et al. claims all of the same subject matter as the current application 10/034918 except for placing the markers on the head and shoulders, representing a head and shoulder movement and generating a profile of neck movement.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have specified the claimed body movements marked be the head and shoulders to represent their movement and using these movements to determine the movement of the neck. Accordingly, such a modification would have been obvious since the head and shoulders are parts of the body as claimed by U.S. Patent No. 6,473,717 to Claussen et al. and knowing their

movement would necessarily provide the movement of the neck since the head and shoulders of a subject cannot be separated any movement of these two must reveal the movement of the neck connecting them, thereby suggesting the obviousness of the modification.

Allowable Subject Matter

5. Claim 2 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claim 2 is the inclusion of the method step of determining a neck movement pattern by forming a difference in three space coordinates between a mean value of loci representing shoulder movement and loci representing head movement to generate a two-dimensional movement pattern. It is this step found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,203,346 to Fuhr et al. because it teaches kinematic movement detection of the cervical spine utilizing head movement tracking.

U.S. Patent No. 5,086,404 to Claussen because it teaches measuring shoulder and head movement to determine the movement of body parts.

U.S. Patent No. 6,514,219 to Guimond et al. because it teaches using head and shoulder movement tracking for postural analysis.

U.S. Patent No. 4,528,990 to Knowles because it teaches a head mounted apparatus for determining spine or head tilting and movement.

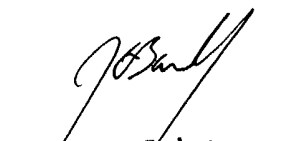
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony T. Dougherty whose telephone number is (703) 305-4020. The examiner can normally be reached on Monday through Friday from 8 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on (703) 308-3126. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



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